

REMARKS

A marked-up version of the rewritten claims is attached hereto.

Claims 1, 23, 25 and 27 have been amended as requested. It is therefore submitted that they now conform to 35 U.S.C. 112, 2nd paragraph. The rejection of claim 17 is not understood. It is submitted that it conforms to 35 U.S.C. 112, 2nd paragraph.

The independent claims in their pending form limit the scope of protection to light pipes "to provide backlighting" of a display. Backlighting means light that is coming from the back, i.e., from behind the display. If a light pipe is there to provide backlighting, it means that light emerges from the light pipe towards the back side of the display, through the display and further towards the eyes of someone looking at the display.

In Watanabe light emerges from a back light source 1, goes through a display panel 4, and thereafter passes through a diffraction grating 5, which is located between the display panel and the user's eye. The diffraction grating 5 can not have anything to do with backlighting, because everything that is related to backlighting takes place behind the display, not in front of it. The purpose of the diffraction grating 5 is to enhance contrast and resolution (see, e.g., column 2, lines 25-26). It makes the viewed image to appear as "a pattern of discontinuous dots" and provides "a sensation of a high resolution". These two concepts are actually in direct contradiction with uniform distribution of light, to which the applicants' invention is related. The diffraction grating of Watanabe is not a light pipe, because a light pipe is something that is used to conduct and distribute light, not a thin grating through which the light passes without essentially even changing

its direction. So Watanabe is 1) not related to providing backlighting and 2) does not disclose a light pipe. The applicant's pending claims require the invention to be related to backlighting and to the use of a light pipe, which makes it clear that the disclosure of Watanabe can not have anything to do with the patentability of the applicant's present invention.

Shiono is similarly far from the technological field of the application. It is related to diffractive lenses, which are devices used to diffractively concentrate and distribute light in application like optical Compact Disc drives and the like. Nowhere in Shiono can there be found anything that could be interpreted as pointing towards displays or backlighting. Additionally the surface elements of Shiono are arcuate sections, which only in cross sectional views can give a false appearance of "pixels" to the untrained eye. Pixels are another explicitly recited limiting feature in the pending independent claims, so Shiono is indeed very far from the applicant's claimed subject matter.

In summary, the independent claims all now positively recite "to provide backlighting" and "a light pipe". Since these features are not in the references, Claims 1-10, 12 and 15-18 define over them and the rejection under 35 USC 102 should be withdrawn.

Further, since these features are not suggested by the references, the rejection of claims 11 and 13-14 under 35 USC 103 should also be withdrawn.


Added claim 29 is supported by Fig. 3C. This feature (uniform light output with distance) is totally missing from the

references. Even the previously applied references do not show this feature in combination with diffractive properties.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested, or at least an entry for appeal purposes since the claims are in better condition for an appeal. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for any fee deficiencies associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,


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Date

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Marked Up Claim(s)

1. (Four Times Amended) A light pipe [for providing backlighting of a flat-panel display by means of at least one light source] comprising:

a first surface, said surface including patterns having diffractive properties for coupling light out from the light pipe to provide backlighting of a flat-panel display by means of at least one light source, said patterns comprising uniform, mutually different areas distributed on said first surface;

wherein the light pipe further comprise first pixel-like formations having a first orientation and second pixel-like formations having a second orientation being different than that of the first pixel-like formations orientation, residing close to the light input end of the light pipe, said pixel-like formations being arranged to diffract the light for producing uniform lighting.

17. (Thrice Amended) A light pipe arrangement comprising:

a light source,
a display,
a light pipe, and
a base plate of the light pipe,

wherein

the light pipe is limited by a first surface, said surface comprises patterns, said patterns have diffractive properties for coupling the light out from the light pipe to provide backlighting of a flat-panel display by means of at least one light source, said patterns comprise uniform, mutually different areas with a distribution on said first surface; and

wherein the light pipe further comprise first pixel-like formations having a first orientation and second pixel-like formations having a second orientation being different than that of the first pixel-like formations orientation, residing close to the light input end of the light pipe, said pixel-like formations being arranged to diffract the light for producing uniform lighting.

23. (Twice Amended) A light pipe [for providing backlighting of a flat-panel display by means of at least one light source], comprising:

a first surface, said surface including two dimensional patterns having diffractive properties for coupling light out from the light pipe to provide backlighting of a flat-panel display by means of at least one light source, said patterns comprising uniform, mutually different areas distributed on said first surface.

24. (Amended) A light pipe arrangement comprising:

a light source,
a display, and

a light pipe,

wherein

the light pipe is limited by a first surface, said surface comprises two dimensional patterns, said patterns have diffractive properties for coupling the light out from the light pipe to provide backlighting of a flat-panel display by means of at least one light source, said patterns comprise uniform, mutually different areas with a distribution on said first surface.

25. (Twice Amended) A light pipe [for providing backlighting of a flat-panel display by means of at least one light source,] comprising:

a first surface, said surface including pixel patterns having diffractive properties for coupling light out from the light pipe to provide backlighting of a flat-panel display by means of at least one light source, said patterns comprising uniform, mutually different areas distributed on said first surface.

26. (Amended) A light pipe arrangement comprising:

a light source,
a display, and
a light pipe,

wherein

the light pipe is limited by a first surface, said surface comprises pixel patterns, said patterns have diffractive properties for coupling the light out from the light pipe to provide backlighting of a flat-panel display by means of at least one light source, said patterns comprise uniform, mutually different areas with a distribution on said first surface.

27. (Twice Amended) A light pipe [for providing backlighting of a flat-panel display by means of at least one light source,] comprising:

a first surface, said surface including patterns having diffractive properties for coupling light out from the light pipe to provide backlighting of a flat-panel display by means of at least one light source, said patterns comprising uniform, mutually different areas distributed on said first surface including close to said light source.

28. (Amended) A light pipe arrangement comprising:

a light source,
a display, and
a light pipe,

whererin

the light pipe is limited by a first surface, said surface comprises patterns, said patterns have diffractive properties for coupling the light out from the light pipe source to provide backlighting of a flat-panel display by means of at least one light

source, said patterns comprise uniform, mutually difference areas with a distribution on said first surface including close to said light.